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ABSTRACT

This paper begins with a review of recent studies of the development of phonology, syntax, and semantics between the ages of five and twelve. Studies in pragmatics (or the functions of language) are also considered. The paper then turns from investigations of oral language acquisition to an examination of the interplay between oral and written language and to the development of metalinguistic awareness (language about language). Anecdotal observations of what children do with language are the basis of the next section of the review, which draws implications from (rather than for) teaching. Descriptions of teaching practices are used to illustrate child/adult language acquisition in the teaching/learning situation. The descriptions are personal explorations of ways teachers have helped facilitate child language acquisition and, in the process, have discovered new things about their own language. (AA)

Effects of Written Language and Metalinguistic Awareness on Language Acquisition from 5 to 12

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CONTENTS

FORWARD

Charles Norman told me once that there comes a time after the composition of a poem, a painting, a story when one can no longer change any of the parts without destroying the whole. Such a point has come with this paper on child language acquisition: a point in my own development to which I cannot return. I think that I do, however, understand why I cannot revise this paper without destroying it. I suspect that many of my readers will remember being, or may currently be at a similar point of conflict in the study of language.

When I was asked to write the paper, I was told to write about reading acquisition. I said then that I no longer thought I was studying reading, that I was studying language in all its aspects. I now find it difficult to think that the topic is language; I suspect it is what we might call epistemology, in my fuzzy boundary use of the term as the investigation of coming to know.

As I re-read the paper, I detect a conflict

in my own viewpoints toward language development and its relation to knowledge of the world and of the self. I find myself writing halfway from a finite set framework and halfway from a Wittgensteinian limitless possibilities framework. I read myself writing about "rule-governed behavior" and at the same time about "fuzzy boundaries." I did claim that we must investigate both variance and invariance, but I do not believe that I had decided that people could be as complex as I am now convinced we are.

Effects of Written Language and Metalinguistic Awareness on Language Acquisition from 5 to 12

The first five years of a person's life are usually considered to contain the most dramatic changes in language development (Brown, 1973); recently, however, students of child language acquisition have begun to find subtle and important drama in the years between age 5 and puberty (Lenneberg, 1966; C. Chomsky, 1972; Anderson, 1975)

Typically, researchers speak of child language acquisition before age 5 and mean acquisition of oral language. Palermo & Molfese (1972) reviewed the literature on development in phonology, syntax, and semantics. I have reviewed briefly some of the more recent studies in these fields. I have also included work in the field of pragmatics, a neglected area of research in oral language acquisition.

I believe that an examination of oral language acquisition alone is insufficient; thus the heart of this paper includes an examination of the interplay between oral and written language and the development of metalinguistic awareness. The growth of the child's

language system after age 5 is complicated by the fact that the child begins formal instruction, particularly in reading. Age 5 is, of course, arbitrarily taken from the research; whenever children begin formal instruction they have the opportunity to change their oral language system through their developing use of written language. We know very little as yet about the relationships between oral language and written language but I will report on a few studies investigating the impact of written language.

A related aspect of formal instruction is the opportunity to change the part of the child's language system that can be called metalinguistics, or language-about-language. I will present a few studies that address the child's growing skill in analyzing his own language, segmenting it into the meaningful (and sometimes seemingly meaningless) units required for school tasks, and responding to language-about-language. Many of these studies also relate to the possible effects of written language upon oral language.

I reviewed the literature on child language acquisition so that I might draw some implications for teaching. I found, rather, that the implications came

from teaching, from what I found children doing with language. Hence, the last part of this paper is anecdotal, personal, and speculative. What I found children doing with language, however, confirms some insights of the research reported. The research itself is scant, addresses scattered topics, and lacks coherent focus. Perhaps that focus may come from pedagogy.

Traditional Investigations in Oral Language Development

Phonology. Gibson & Levin's (1975) review of the literature on phonology concluded that, not only do most children control the phonetic output of all except the least important sounds in English by kindergarten age, children are also in control of a phonological rule-system. Ingram (1974) tended toward a similar view but cautioned that we could overstress the rapidity of the child's movement toward an adult phonological system (cf. Palermo & Molfese, 1972). Charles Read's (1975a and 1975b) work in the early invented spelling of preschool children furnishes evidence that children do evolve a phonological system. Read found amazing consistency in what the children did in attempting to spell, consistency in the way their spellings differed from the adult, or dictionary, spellings. The impact of written language can be seen even more vividly in work with older children in spelling and pronunciation (Moskowitz, 1973; Templeton, in progress).

Furthermore, the discussion of the phonological system's development in the older child becomes difficult because of the increasingly tacit nature of phonology as syntax and semantics become more complex. As Gibson & Levin (1975, p. 125) suggest:

> . . .[M]eaning units take priority in the child's analysis of speech.

Parallels have been drawn between the development of language historically and of language development within the individual child, particularly at the level of phonology. Weinreich, Labov, & Herzog (1968) have discussed sound changes which include the role of the child. Paul Kiparsky examined the development of the language system within the young child specifically (1975, pp. 278-79):

> Language, then, evolves as a self-correcting system, without ever reaching a state of equilibrium, but also without ever deteriorating to a point where it cannot function as a fully adequate means of expression.

To Kiparsky, as with Gibson & Levin, changes within the language system of the young child are related not only to the sound system that composes phonology, but also to the elements of language that have been called syntax, semantics, and pragmatics. Changes within the language of the group and the language of the individual child were both described as being motivated by functional

needs (needs for ease in speaking; for ease in understanding; and for ease in learning); by social status needs; and often by needs created by a change in one facet of language requiring a change in another For instance, a change in the sound system might create a homophone which would cause semantic confusion. Whichever aspect of language we are talking about, we may refer to systems which evolve dynamically.

Syntax. Syntax, or the orderly way in which English words fit together in sentences, phrases, or clauses, has become increasingly difficult to divorce from semantics, or the meanings attached to the words--so much so that John Robert Ross (1975) coined the term semantax (compare that with the earlier term tagmeme) to describe "a blended system concerned both with meaning and with form" (p 283). For purposes of this paper, however, and because of the designs of the studies themselves, research with primary emphasis on syntax has been separated from research with emphasis on semantics. (Even researchers find the division hard to maintain; notice Carol Chomsky's work.)

Studies of child acquisition of syntactical forms prior to age 5 had indicated that the young child very rapidly approximates adult word order

in sentences (Brown, 1973). Carol Chomsky (1969) began work into the acquisition of syntax in children 5-10. She noticed that older children often seemed to understand a syntactic structure associated with certain words, such as ask, tell, promise, easy to see, hard to see, as long as these words were in an unambiguous setting. When she put them into test situations with ambiguous sentences, Chomsky found children learned more and more about the structures associated with the meanings of the words as they grew older:

> We see that the progress of learning a word may be a lengthy one, which the child may go through fairly slowly. He may acquire the concept of a word and some of its associated structures, and may wait several years before learning an additional associated structure, particularly if it is a problematic one. (p. 41)

Carol Chomsky used the term "potential learning period" for the boundaries of the acquisition period and claimed that children on the edge of mastery of these less common structures may shed light on degrees of complexity of syntactic structure in adult language (p. 121).

The question of which syntactical structures are more complex has been raised by many investigators (R. Brown & Hanlon, 1968; Ross, 1975; Pearson, 1975).

Brown & Hanlon invoked Zipf's Law rather unusually in their study of the late acquisition of tag questions such as "didn't I?" or "did I?" Zipf had compared the length in letters of English words to their frequency of use and had noted an inverse relationship. Hence, some investigators had theorized that we would acquire short simple words (or sentence forms, such as the simple, active, affirmative, declarative sentence) earlier, due to Zipf'd Law, which in Brown's description (p. 191) had further postulated that "our frequently used tools. . . will be kept simple and close to hand."

The paradox in the Brown and Hanlon study was the late acquisition of such seemingly short and simple forms as the tag question. They indicated that the transformations or derivations which the person must go through to produce the surface form of "didn't I?" in its correct, or adult, usage at the end of a sentence were as complex as those for many far longer sentences. Furthermore, they suggested that frequency of usage (or age of acquisition) might be important material for cognitive psychologists; our more basic language tools seem to be learned earlier (cf. C. Chomsky, 1969). Brown and Hanlon (p. 188) hedged rather dogmatically:

> Length and frequency are not cognitive variables but we cannot be sure that they will, on that account, fail to influence results obtained by psychologists.

Ruth Clark (1974) attempted to explain why children often seem to have understanding of language elements which haven't actually been incorporated into their language system. She argued that children will often repeat unprocessed elements, within the limits of memory ("That's our had lunch," p. 6). Slobin & Welsh (1973) report examples similar to Clark's. I have called these repetitions of unprocessed units placeholders. I think that adults often have similar unprocessed linguistic units; we frequently are amazed when we see a word or phrase in print that we have been using at the oral language level without realizing its written segmentation.

Clark claimed that the process of "modifying a practiced unit internally is psychologically more complex than the process of collocating linguistic units"; we can move the unit more easily than we can analyze it. Thus a child may organize linguistic units at different levels concurrently, may use different strategies in combining previously acquired structures with new "heard" structures. We are probably all familiar with the child who parrots a mature-sounding phrase and adds a different ending, as if the phrase were one word, or placeholder.

Clark divided between linguistic knowledge and psychological processes, positing that the acquisition of new linguistic (syntactic, here) structures influences psychological processes; and psychological processes influence the acquisition of new linguistic knowledge. She based this claim on her interpretation of George Miller's statement concerning memory capacity's being affected "by the structure of the material to be remembered" (p. 8; also cf. F. Smith, 1975).

Clark documented her study with diary evidence of children attempting to reduce processing load. Other investigators in syntax used time of processing based on transformational generative grammar models, along with order of acquisition, to arrive at complexity ratings (Granowsky & Botel, 1974). Most of the related studies of syntactical complexity (Vogel, 1975; Siler, 1974; Smith, 1975; & Pearson, 1975) involved written language and will be addressed in the second section of this paper.

Semantics. Eve Clark (1973, 1974) has authored and inspired many investigations into the acquisition of relational words. Her 1973 paper demonstrated a method of testing for order of acquisition of the

terms in, on, and under as words with different meanings, versus being placeholders in the sentence with a vague meaning of "location" to which the child could respond with a guess based on the normal use of objects in the environment. For example, the sentence: "Put the spoon in the cup," might be performed correctly by the child because that's what we usually do with a spoon near a cup.

Holland and Palermo (1975) performed a similar study with the terms more and less, with children from age 4-10 to 5-11. They interpreted their results, which indicated increased understanding of the terms after teaching sessions using Piagetian conservation tasks, in light of contributions to semantic theory by Hermine Sinclair-de Zwart (1973). Madame Sinclair, in opposition to linguists who wish to attribute a more central role to language in cognitive development, had suggested that

> Linguistic structures may well be yet another symptom of the very general, universal cognitive structures. (p. 25)

Herb Clark (1973) set the theoretical background for work by Kuczaj & Maratsos (1975) in "Space, time, semantics, and the child." Clark hypothesized that

the young child has developed an awareness of perceptual space (called P-space) well before he begins to attend to the words for space and time that adults use. Clark related his hypothesis to information that Bierwisch and Greenberg had gathered in their explorations in search of language universals.

Remember Ruth Clark's claim that words used can be unprocessed. In Eve Clark's work many of the words were necessary in the sentences used, thus could operate as placeholders, even with Clark's careful attempts to separate the child's linguistic responses from the typical response to items in the environment. In her work on relational words like in, on, under, before, and after, she commented that tasks could be devised which would separate the child's true linguistic responses from his linguistic responses more clearly than her tasks had done.

Stan Kuczaj's more successful experiment attempting to make such a separation (1975) was done with children on the lower age boundary of this paper (ages 3-5). Nevertheless, his critique of semantic acquisition studies seem quite pertinent to the attempt to find "unprocessed units."

Kuczaj constructed two experiments to test the child's comprehension of always, never, usually, sometimes,

and seldom. His first experiment compared the polar terms always and seldom and the second used all five terms. Kuczaj chose words which could be separated from the basic sentence carrying them without leaving an unusual string (to adult ears). For example, "The girl always jumps," can be rendered "The girl jumps," without violating adult syntax. Eve Clark's "Put the spoon in the cup," examples are not so easily separated without adding a complicating factor to evaluate: the child's response to an anomalous string.

Kuczaj used a two-part comprehension task: response to the basic sentence and response to the sentence with always or never inserted. But he checked further to be certain when children were responding to the addition of the term differentially and when they were still just responding to the basic sentence. He looked for judgments of silliness to utterances by the hand puppet: "Tell me when my puppet says something silly." He also used an imitation task after Slobin and Welsh (1973), as a further check, assuming that the child would omit the meaningful word, if it were so.

Kuczaj's reasoning was careful, it seemed to

me, yet we have a number of mysteries about how semantic features for abstract words may be acquired and about how word usage develops. Does the concept develop before the child attends to and uses an adult word? Does this happen only in certain semantic categories like time and space? Further, does a child respond to a string like ubac (Kuczaj, p. 353) the same way he would to never? Slobin & Welsh (1973) found that there were reasons other than failure to comprehend which affected the imitation or lack of imitation of words. The child they studied would imitate a nonsense word in place of a copula while she would omit other parts of utterances.

In an experiment with older children (ages 4-9) Kuczaj & Maratsos (1972) dealt with a different question. They asked: How do children assign the terms front, back, and side to objects with and without canonical fronts, backs, and sides? Their attempt was to test Herb Clark's hypothesis that children extend the interpretation of spatial terms first from their own bodies then to other objects. Their data indicated a number of problems with the Clarks' semantic hypothesis.

The investigations described above concerned words that could be described as highly abstract, working in a semantic subsystem. In a different type

of experiment into child acquisition of word meaning, Elaine Anderson (1975) explored categorizations by children, following work by Labov (1973). Anderson questioned how the child assigns the words cup and glass to objects in the environment.

The work of the Clarks and their colleagues had dealt with words which they postulated began as very vague ideas to the child linguistically; Anderson's work dealt with words that probably begin to operate as very specific ideas linguistically (cf. Nelson, 1974). Such a word as cup would be acquired, supposedly, as the name of a concrete referent in the world: cup is a cup, and it probably is the child's cup.

Anderson collected a variety of cups and glasses. She asked children aged 3, 6, 9, and 12 to do four tasks: 1) to name the items; 2) to sort them into cups versus glasses (and to put the ones they thought were neither into a leftover pile); 3) to define cup and glass; and 4) to choose the best exemplar for each category (a typicality rating; cf. Rosch, 1975a; 1975b).

Anderson concluded that Eve Clark's partial semantic hypothesis might apply in this type of task also from first learning "names" for a few objects,

a child will tend to overextend the usage, especially in relation to salient perceptual properties, then will make finer and finer distinctions leading to discrete categories which older children can verbalize into definitions similar to adult, "dictionary" definitions (definitions which are hedged and phrased in terms of typicality often, with lots of room for "leftovers").

An outcome looked for but not questioned directly was the realization on the part of the older children that our category boundaries are vague. The older the child, the more items he tended to place in the leftover pile. Anderson interpreted this as indicating that the mature understanding of a semantic domain, whether abstract or concrete, will include some understanding of the vagueness of categories, of the fuzziness of categories (Labov, 1973).

It may be that Anderson's leftover pile and Rosch's typicality ratings can lead in the direction of investigating the variability of how children mean and yet the communalities that enable children to communicate, even with a language system that is constantly changing (Kiparsky, 1975; Leontiev, 1975; Weinreich, Labov, & Herzog, 1968, addressed the issue of the individual language system's working toward,

but never attaining equilibrium).

A difficulty, of course, arises in any research that asks the child to introspect or to attempt to report directly on what he is doing with language; however, some investigators have found it appropriate to try to tap the child's ability to do just that, to analyze his own language system (the metalinguistic awareness issue reported later). In Anderson's task, the children seemed to be able to define (to operate linguistically or perhaps metalinguistically) in the context of physical manipulations with concrete referents, so she could compare linguistic with nonlinguistic signs of the children's concepts. Perhaps even more sophisticated, or sensitive, designs can be devised to probe for other semantic understandings of the young child.

Pragmatics. This first section of the paper was titled "Traditional investigations" because of its emphasis upon oral language acquisition studies as distinct from research into the interplay between written and oral language. The subject of "pragmatics," however, in the examination of child language acquisition might be called a "neglected tradition." Jerome Bruner (1974) suggested, in a theoretical position paper, that the emphasis upon synchronic grammatical aspects

of language has [illegible]d great ins[illegible], but at great cost: we have neglected to attend to functions of language. Bruner feels that this neglect has caused investigative confusions and misinterpretations;

> [a]nd since the uses of language are, I believe, crucial to an understanding of how language is acquired, how it is INITIALLY used, the study of language acquisition has been distorted. (p. 1)

Bruner and Dore (1974) have requested that presuppositions about the young language acquirer's intentions be re-examined. They point to the assumptions of grammars based upon syntax or semantics as formal models which may have led investigators to attribute to the child knowledge (although rudimentary) based upon a fullblown adult grammatical system (which may or may not be descriptive of adult language, I might add). Dore, for example, suggested that overconcern with the sentence as the assumed unit of language underlying the child's first utterances has led to "an unresolvable theoretical stalemate" (p. 21). Bruner (1974, p. 6) illustrated this point with David McNeill's early and open assumption of 'the concept of a sentence' underlying children's first utterances (along with McNeill's modification of this assumption).

The Dore and Bruner position papers re-analyzed data from syntactic and semantic grammars in light of

speech act theory, an area of pragmatics. Their approach to language acquisition assumes that the analysis of language formally into such categories as phonology, syntax, and semantics is not necessarily applicable to the language system of the young child. (Compare Cazden's 1973 warning that work in socio-linguistics and stratificational grammar should not be ignored.) Bruner and Dore suggest that the synthesis of these language elements in the speech acts of the young child may be more sensibly regarded as part of the overall cognitive development of the child, emerging developmentally from an instrumental, intentional base and later developing as separable linguistic systems in the adult. It is to the adult that the competence model may seem to apply, not to the young child. They feel that work similar to that of Sinclair-De Zwart using Piagetian-type techniques would be a promising avenue to pursue.

Unfortunately for me, the data which the papers of Dore and Bruner examined pertain to very young children (cf. Brown, 1973), outside the aegis of this paper. The studies that relate to oral language development from a pragmatic standpoint for children aged 5 to 12 which I could find are less theoretical

and range more widely.

Dore warned that pragmatics, for him "speech act theory," should not be interpreted as rejecting grammatical analyses of language, but as integrating the knowledge of grammar of the fully developed system with the communicative functions for which individual speakers use language (p. 39). The studies which follow illustrate some surprising uses of language by children in the age range with which we are concerned.

Descriptions of child language usage from a pragmatics standpoint has been provided by Fraser & Roberts (1975), by Gleason (1973), and by Asher (1976). Cazden (1973), additionally, analyzed the feedback that parents and adults furnish young speakers in the preschool years; she said that this feedback was a reaction to the communication intended by the child, rather than a reaction to "correct" syntax or "correct" pronunciation. Rather than spending hours expanding and modelling language use for children, parents react to the truth value or the instrumental value of a child's utterances. (When a child reaches school age, however, she noted that he may be corrected for his usage rather than having his statements reacted to as communication.)

Cazden suggested that attention to "correctness" of talk in school, as opposed to attention to the meaning intended by the child, may be harmful. She discussed research in which the "non-verbal" nature of Black children disappeared when the children were put in a setting in which the communicative value of their speech was honored.

Gleason (1973) and Fraser & Roberts (1975) analyzed the styles of discourse which children use with each other and with adults. We know that we can switch codes, or styles of speaking, as adults, but children have been assumed to be linguistically too immature to switch codes. Fraser and Roberts had found mothers adapting to children, using more complex speech with older children and less complex with younger children, when asked to direct model building and to tell stories in a laboratory setting. Gleason decided to use a more naturalistic method of gathering data (visiting the homes and recording interchanges between children and other children, older and younger, and between children and adults). She found that children themselves develop the ability to switch codes and develop the ability rather early.

Gleason had expected to find children developing a baby-talk code with younger children; a colloquial,

casual style with their peers; and a formal style with adults. She concluded that these styles exist, but that children showed much more flexibility in code switching than she had expected. She found at least two other codes, a language of socialization (cf. Weinreich, Labov, & Herzog, 1968) in which children could encourage one another to "be nice," and a whining style. An example of the code analysis Gleason used is "baby talk." Adults using "baby talk" to children use higher fundamental frequencies; they use simple sentences, concrete nouns, dimunitives and other endearments, expansions, and even "making over," or excessive praise or inordinate attention.

Gleason noted that the codes overlap or change quickly. Even in "baby talk" many attributes could be considered to be attempts to show a child how to act, rather than how to speak; the intention seems to be that of socialization, even within the baby talk context. Gleason recorded an orderly progression in children: when very young they will accept baby talk addressed to them; later they will rebel and let the adult (or older child) know that they will no longer respond in the desired manner to baby

talk. By the time a child is 8, he can use an extreme baby talk code himself to a 2 year old and use a socialization code to a 4 year old. This same 8 year old can indulge in formal talk with adults, although he will even vary his style according to his relationship with the adult in question.

One could construct a syntactical analysis of the language system of this 8 year old when he is using the formal code, I suppose, but such an analysis would omit the pragmatics, or functions of his utterances; it would omit how language functions in the context of the child's life. Let us look at the child's ability to assess his use of language.

Asher (1976) assumed that, while children may be able to use language for many different functions, they might not be able to reflect upon, or judge, the effectiveness of their own usage nor to evaluate the effectiveness of the communications of other people. Second-, fourth-, and sixth-grade students were tasked with giving clues about one of two words to an imaginary person. They were then asked to evaluate their own clues or the clues of a yoked age-mate, when the clues were given to them. Effectiveness ratings were compared with adult evaluations. Asher

found, unsurprisingly, that the ability to appraise effectively increases with age. The unusual results were that children of all ages showed the ability to judge their own effectiveness equally as well as the effectiveness of other people; a bias in favor of self-effectiveness and an inaccuracy in appraising the effectiveness of the other person was expected. This bias was expected, in particular, with younger children who are supposedly ". . . vulnerable to egocentric bias" (p. 31).

These few studies of code-switching ability and effectiveness appraisal would seem to indicate that children may be far more able to reflect upon their own language usage than heretofore believed. This ability to reflect may be highly affected by the communicative context, however; I suspect that children may be facilitated in activities in which they are absorbed in doing something exciting and hindered when the emphasis is put upon language analysis for its own sake (such as asking a child to define "what a sentence is" in a school-setting).

Dore (1974) argued that speech act theory in pragmatics has a data base that calls for attention.

The social, re ... , and even play functions
(. Garvey, ... son & Levin, 1975) are
...her areas w... seem important to the young
...ild. Certai... her area needing examination
is the child's ... to reflect upon the uses
to which he put ... ge.

The abili... eflect upon one's language
itself, metali... awareness, will be examined in
the second port... this paper as we examine the
interplay betwee... language and written language.

Speculations int... Impact of Written Language

Written La...e. The preceding section of this paper referred ... ly to oral language develop ment without regard fo... rect teaching in school and its effects. This ... will deal with the child's increasing awa... of his language as an "object" which he is as... analyze in such tasks as, "Write the lett... for the beginning sounds you hear in the word 'train,'" or, "How many words do you see (or hear) in this sentence?" As the child begins to read, he may receive input from written language which contribute to increased sophistication in phonology, syntax, semantics, and pragmatics. We shall look br... at some of these areas.

Venezky (1967) analyzed the regularities to be found in English orthography which the young child can take advantage of in learning to read. His position regarding language acquisition seems to reflect a viewpoint that learning to read is highly dependent upon the high development of the language system, especially phonology, prior to beginning to read:

> In learning to read one's native language. . . the individual brings a reasonably adequate set of language habits, as evidenced by his ability to speak. Learning to read in this situation requires primarily the translation from written symbols to sound, a procedure which is the basis of the reading process and probably is the only language skill unique to reading. (p. 102)

Opposing conceptions of the fit of written language into the language acquisition of the young child reflect different hypotheses about what reading is. Frank Smith (1975) suggests that what the child reads involves a trade-off between visual and nonvisual information, between what is "on the page" and what is expected from one's understandings.

Without entering the controversy over what reading is, I think we should consider the arguments that Venezky raised concerning the development of the child's phonological system before age 5. M. C. Templin (1966) has presented evidence that the phonological system of many young children did not include adequate control

of the morphological phonemes tested by Harding; similar evidence was presented by Vogel (1977).

Whether or not Venezky is correct about the child prior to age 6, Breyne Moskowitz (1978) and Shane Templeton (in progress) suggest that many aspects of the child's developing phonological system may come from the child's dealings with written language and vice versa.

Moskowitz (1978) set about to test for the psychological reality of the derivational rule system that Chomsky and Halle had set forth in The Sound Pattern of English (1968). She questioned whether the derivational rules could be separated by looking at children developmentally. She used nonsense words reflecting the steps in the derivations under consideration, for example the application of the rules of vowel shift, tensing/laxing, and diphthongization underlying the different pronunciations of _divine_ and _divinity_); she concluded that the rules should not be separated, but that children nevertheless did gradually acquire knowledge of vowel shift between the ages of 7 and 12.

Moskowitz suggested that the source of this knowledge which children incorporate into their system

of phonology is "the spelling system of Engli
She compared her evidence with the early spe
that Read (1975) had investigated; it might be
noted that even Read's studies assumed knowle
of writing because his children abstracted sou
relationships from letter names.

Moskowitz's data further implied that contributions to the phonology system came from meaning relationships between such words as derivation; opaque-opacity; base-basic; fun fea- funeral; profound-profundity, such that the child becomes able to predict the pronunciation of words that are meaningfully related.

Carol Chomsky (1970) had suggested that while pronunciation may not be indicated by the surface display in the orthography, children can abstract the meaning relationship underlying related words. She followed a transformational generative model in positing that the matur hearer-speaker of the language stores words mental by categories in a lexicon; in the hypothetical lexicon words are supposedly represented by an underlying "lexical spelling" which does not directly match surface phonetic output. The lexical spelling, she argued,

mature the surface spelling far more closely to the surface phonetics so that the reader may pass directly, or fairly directly, from the written text to the meaning, without going through the translation (cf. Venezky, 1967) to phonetics without "saying the words".

Carol Chomsky (1972) also worked with children's syntactical development in a way that relates to the impact of written language. In 1969, she had investigated the syntactical structures associated with correct interpretations of ask, tell, promise, easy to see/hard to see, as these structures develop in children from age 5 to 10. In 1972, she decided to test nine constructions with children aged 6-10. Of the nine, only five were of proper difficulty to shed light on degrees of complexity of structure, according to her 1969 guidelines for tasks. Her hypothesis was that the child language acquisition studies might substantiate claims of derivational complexity here for sentences, in a way that a Moskowitz-type study, dealing with nonsense, could not. The five constructions were easy/hard to see; promise; tell; ask/tell; constructions following and; and constructions following although.

Chomsky had not expected the tasks to be more than loosely related and was surprised to discover that they followed a developmental sequence, with very little variation. A post hoc examination of the items (p. 20) showed the common feature: "They all require the listener to fill in a missing item in order to understand the sentence." The rule the children have to understand was to violate the rule of reference learned in ordinary constructions. The violation required the child to ignore the closest candidate for reference and, in Chomsky's elegant phrase: Keep on looking. (Examples: "Mother scolded Greta for answering the phone and I would have done the same"; "Mother scolded Greta for answering the phone although I would have done the same.")

The interesting part of this study for our purposes was Carol Chomsky's decision to explore the possible relationship of reading to the children's language development. Her concern was the amount and complexity of the literary language which the children heard or read.

While the number of children (thirty-six) was small, Chomsky and her colleagues found that being read to and reading to oneself correlated highly with the early linguistic maturity on the five tasks they

tested. She cautioned against overinterpreting her correlations and suggested follow-up research into the influence of written language on overall language acquisition.

Moving in a somewhat different direction has been research into how written material is comprehended. In order for written language to affect language overall as Chomsky's work suggested, the child must understand the material that he reads or hears read. We have assumed, somewhat simplistically, that reading for oneself and being read to operate in the same manner; we have even assumed this with young children, it seems, if we accept the evidence of the use of the informal reading inventory and other standard diagnostic tools. Under the assumption that reading for oneself and being read to operate in the same manner, some investigators (Frederiksen, 1975; Meyer, 197- have explored how impo from written discourse affects a person's ability to recall information from the discourse when it has been read to subjects. If the assumption itself is addressed with listening and reading conditions, I feel that work of this sort may provide useful information into the interplay between written and oral language. These studies also seem able to help address issues raised by

readability studies.

Readability formulae have been used as a measure of text difficulty and this difficulty has often been measured by the number of unfamiliar words and number of sentences in a set passage length (Dale & Chall, 1948; Spache, 1960). With the advent of transformational generative grammars, Granowsky & Botel (1974) devised a measure of Syntactic Complexity to add to the usefulness of traditional readability formulae. Earlier research had failed to find sufficient effects of other variables to warrant including them in the formulae, even if it seemed to commonsense that they did affect the difficulty of the material (Pearson, 1975).

Granowsky & Botel made the assumption that syntactic complexity renders comprehension difficult, using evidence from time of processing along with order of acquisition of syntactical structures to build their case. A number of opposing studies indicated that written language need not be made simple in syntax for it to aid the young child; in fact, complexity of structure might be easier for the child to process (Pearson. 1975; Cazden, 1972; Smith, 1975; Gough, 1972; and, to a degree, Siler, 1974).

Pearson, for example, found that syntactic complexity may aid rather than hinder comprehension in reading. He investigated three models: 1) the readability formula model; 2) the deep structure (syntactic model; and 3) the "chunk" model. He claimed that the traditional readability model and the deep structure model (Granowsky & Botel) were closely related because of their emphasis upon the surface structure of the sentence. Both models would yield short sentences which would tend to be of the simple, active, affirmative, declarative sort, with the surface structure more clearly resembling the deep structure. He felt he could, then, test the assertation that syntactic complexity renders text harder to comprehend.

Pearson opposed these two models to the "chunk" model. He defined the chunk model by claiming that material or ideas grouped together in meaningful complex propositions enter storage more easily; they are also easier to recall than is material broken down into atomistic, or simple propositions. The chunking of ideas will aid the reader to make the inferences needed in comprehension, whereas the separation of ideas in atomistic propositions will hinder comprehension. In other words, the chunk

model would suggest that, as the surface structure moves away from the deep structure, comprehension may be facilitated because the propositions are integrated rather than fragmented.

Consider these examples:

1. The man fell down when he was shot.

2. The man fell down. The man was shot.

The examples both contain the same number of simple words. The second example, however, contains more sentences within the same passage length and the sentence structure is simpler. Pearson claimed that the second example with its two simple propositions does not state the causal relationship which the reader must draw in comprehending, but calls for the reader to make an inference.

Readability models and deep structure models tend to suggest that simple, atomistic propositions are easier to understand; hence, books for children would tend to be written in short, choppy sentences. Pearson's study suggested that this claim and the resulting practice in writing are not valid. Almost all of the data in his experiments favored the chunk model for aiding comprehension as well as being preferred by children. Pearson

concluded that syntax is secondary to semantics; we must make contact with the head:

> . . . [A]ny psychological model which attempts to explain the way in which verbal data are processed must begin with a semantic representation of the total relations involved rather than a syntactic description of the units which make up the relations. In short, some context must be put into the head before syntactic processing can occur. (p. 189)

Research by Siler (1974) questioned the division between syntax and semantics itself. He studied errors inserted in sentences and the effects of these errors on 84 second- and fourth-grade pupils in North Colonie, New York. He hoped to determine whether an error in syntax was more disturbing than an error than was semantic. Siler drew conclusions supporting Ross's (1975) position about the interrelationship between syntax and semantics; one may claim that to violate a sentence syntactically is to violate it semantically and the reverse. Siler's conclusions were not based entirely upon his data, however.

Siler's data indicated that children were most disturbed by a syntactic error and second by errors that were both syntactic and semantic. They were fairly well able to handle a sentence that contained only a semantic error. Siler warned that he thought

the study might have been biased toward syntactic errors; he said that syntactic grammars have a more defined taxonomy which can be utilized more readily in devising experimental tasks. (I assume he meant he understood syntactic grammars better than semantic models.) He moved further away from his data in drawing his conclusions that semantics and syntax interrelate and referred to evidence from oral language acquisition studies:

> In contrast, data based on the observations of oral language development suggested that semantics may be the more powerful constraint and further suggested that semantics may determine the order of emergence of syntactic categories. (p. 599)

Studies in comprehension of written discourse and studies in complexity and/or readability may furnish evidence of how written language and oral language interrelate, but the evidence thus far is sketchy. We need not only evidence about how written language may affect children's acquisition of language but also evidence about the attention processes the child may need for written language to have such an effect.

Metalinguistic Awareness. One kind of attention process needed may be the ability to analyze one's language. Gibson

and Levin (1975) and Roger Brown (1973) have commented upon the lack of requirements for the preschool child to analyze his own language; instead, the very young child uses his language. We can all sympathize with Roger Brown's plaints about the headaches children have caused him when he attempted to get them to report directly on how they conceive of language. (I remember being sung "Bill Grogan's Goat" three times when I asked a five-year-old to teach me a word; I never was sure whether he was trying to teach me a word or trying to get me to leave him alone.)

From the moment children begin school, however, they are asked to analyze their own language (or the language of some reading or readiness program). Linnea Ehri (1975) claimed that these school tasks call for "metalinguistic skills," or "conscious awareness of and ability to manipulate language as an object" (p. 204). Papandropoulou & Sinclair (1974) describe children being asked to listen for "sounds," "words," and "sentences" before the children have conscious awareness of these elements in their language. Downing & Oliver (1974) suggested that teachers assume that children have concepts for these metalinguistic terms when in fact they do not, or when they have the concepts in such a rudimentary form that the school tasks

cannot access them.

Papandropoulou & Sinclair investigated the development of the concept for "word" in children in Geneva, Switzerland, from ages 4-10. They simply asked these children, "What is a word?" Then they probed the responses. They found a developmental trend in children's ability to reflect upon language. Papandropoulou & Sinclair described this development as having four fairly well-defined stages.

First, most 4 and 5 year old children did not differentiate between words and objects and, occasionally, between words and actions. Chair was called a long word, for instance, because a chair has long legs.

At stage two, some 5 year olds through most 7 year olds still considered words to correspond to real-world referents. They found evidence for this in the refusal of the children to admit that and and the were words as well as in their definitions for "word." The children commented upon the functions of words in commenting about something or labelling something. Children began to mention letters in their definitions of "word" but in a confused manner.

Meaning entered into the definitions at stage three.

Some precocious 6 year olds up through 8 year olds began to mention meaning, rather than just indicating a correspondence with a referent. The strange thing (perhaps not strange at all, but significant) about this stage to Papandropoulou & Sinclair was the tendency of the children to define a word negatively in terms of meaning. The word was not the meaning-bearing unit; the sentence or story was the meaning-bearing unit and the word was "a bit" of a story or sentence. (I have often had children use just that definition: A word is a "little bit" of a sentence.)

At the fourth stage, the children viewed words as separate meaningful units (except the is still denied meaning) and also regarded words, with degrees of sophistication, to be grammatical units. The developmental trend would seem to indicate an impact from written language, but it would be interesting to see this question posed more directly (cf. C. Chomsky, 1972; Castle, 1976).

The question of whether metalinguistic concepts arise naturally from impact with written language and from school tasks, whether they can be taught, or whether teaching directly interferes with metalinguistic concepts

also remains to be addressed. Work has been done under the assumption that teachers expect children to have metalinguistic awarenesses that they do not have and that such expectations are either harmful or fruitless. Downing & Oliver (1974) worked with children in kindergarten, first- and second-grade in Victoria, B.C. They asked for judgments about whether or not various sound stimuli were words. The forty-two children they studied exhibited significant confusions at each grade level, confusing phonemes, syllables, and words. Many children confused words with phrases, with sentences, and even with nonverbal sounds.

Downing & Oliver suggested that teachers were not teaching metalinguistic concepts but were expecting children to have the concepts naturally. The form that this teaching should take is not clear; however, I am reminded of Courtney Cazden's observation (1973) that only at school age do children have their utterances reacted to with emphasis upon correct output rather than responded to as communications. Metalinguistic concepts include meaning, but we often only emphasize word, letter, sound, etc. We may be failing to attend to a metalinguistic awareness that would facilitate the development of other metalinguistic awarenesses when we use teaching practices

that fail to stress getting meaning out of writing (I might add, bringing our meanings to writing as well).

This opinion about failure to stress meaning was supported tangentially by Duane R. Tovey (1976) in an exploration of children's perceptions about what they do and ought to do when they read. These 30 American fourth-graders said they looked at every letter, at every word, and that reading was "reading out loud." They reported that, when they came to an unknown word in a sentence, they tried to "sound it out." Only two of the children Tovey surveyed said that they used the structure of the sentence or used meaning clues to help them solve unknown words.

I attempted to ask this question somewhat differently, asking rural Virginia children in grades one through five how they learned a word in talking and how they learned a word in reading. I found far more children discussing meaning than did Tovey; however, my question was worded about learning new words rather than about solving needed words in a print context. (These two studies point out the confusions with which investigators pose metalinguistic questions to children.)

Some of the metalinguistic studies assume that children have concepts which they may not have.

The Tovey study assumed that children had a workable concept for such terms as word and sentence. Other research has questioned children indirectly about their metalinguistic concepts. Dan Slobin (1966) reviewed Karpova's 1955 study with Russian children (ages 3-5, younger than the boundary set for this paper) who were asked to repeat sentences, then to tell how many words were in the sentences, what the first word was, and so forth. The children responded in much the same fashion as did the American children of Ehri (1975) and Holden & MacGinitie (1971). The children grouped meaningful phrases together as "words." There was a progression, according to Slobin's abstract, toward more printlike segmentation, first isolating nouns then isolating sentence subjects from predicates; and finally, some of the older children could isolate most words, with the exception of the functor words. (Later, Karpova used training with plastic counters to facilitate segmentation reporting by the children.)

Ehri and Holden & MacGinitie found that some physical representation like Karpova's counters helped the children with such a task. Holden & MacGinitie divided their study into two parts: speech and the "printed convention." The poor use of print as a clue to segmentation caused them to caution

first-grade teachers that concept building for words, print, and even space might be a neglected step in beginning reading instruction since children segmented orally in a different manner than they segmented visually.

Ehri (1975) tested 35 white middle-class preschoolers, kindergarteners, and first-graders in Davis, California, for their awareness of words as units. She used four tasks with the assumption that reading may heighten metalinguistic awareness in children; written language may contribute to the development of the overall language system. Her children were asked to put a given word into a story; to tap for the number of words in a sentence and to put down chips for the number of syllables; to locate a word misplaced in two repetitions of a sentence; and to listen to a sentence for a specific syllable which might be either stressed or unstressed.

The results indicated, as would be expected, increased ability with increased age. Ehri suggested a follow-up study comparing poor readers with prereaders. The tasks did not seem particularly well designed to detect metalinguistic awareness in a manner pertinent to the interplay between written

and oral language, except to reinforce the proposal that children may need aid in attending to the task of segmentation in these studies of "words-as-words."

Ehri did raised an important question at the conclusion of the study. She speculated about the difficulty the children had with unstressed function words. She suggested that, as children learn to read English, an analytical language which uses determiners and prepositions as separate words, children may have to learn that these unstressed functors are "words" more or less "from scratch" when they begin to read; alternately, they may have developed some awareness of these words as words from the speech flow, although less than for more salient words.

Ehri's viewpoint was that children come to the reading task with implicit knowledge of metalinguistic elements, such as segmentation into words, which the printed conventions can bring into awareness, enabling "the child to analyze and reflect upon the components of his speech" (p. 211). Ehri proposed, as has Helen Castle (1976) that the printed convention "teaches" the child what a word is, in terms of print:

> . . . [I]t is clear that exposure to print teaches the beginning reader what a word is as defined by printing conventions. (p. 211)

Ehri's and Castle's speculations relate to the question of the interplay between written and oral language. Their ideas suggest that we might view both written and oral language as contributing to the child's language system. As adults in a literate society, we often do not understand a word until someone spells or writes it for us. At school age, it is possible that the more metalinguistic awareness that a child brings to print, the less the child will have to learn from print about concepts like word, space, sentence; the less he brings, the more the printed convention may have to contribute to the child's metalinguistic awareness and total language system. However, as Holden & MacGinitie warn, print may not be able to make this contribution unless the child is aided in building concepts for metalinguistic elements. Tovey's study yields some slight evidence that mistaken teaching or learning may be detrimental. I would suggest that the teacher should be attuned to the child's oral and written language development.

The final section of this paper will deal with some implications coming from teaching about the developing language awarenesses of children.

To limit the discussion, I have concentrated on a description of word exploration activities conducted with children I have been teaching. Word exploration cannot be divorced from the main purpose of reading, comprehending and interacting with what one reads. The child's words can come from any source, but the words mentioned in discussing Bruce's work come primarily from stories Bruce has read. They are words he particularly likes or is curious about.

We have classified or sorted these words phonologically and/or graphically; in a sense, we have sorted them syntactically, by "part of speech"; we have sorted them semantically, by the meaning relationships that can be preserved throughout derivational changes. We have just begun to explore how words mean (the pragmatic uses to which they can be put) in a self-conscious fashion.

Our explorations involve written language input since the words come from stories. Finally, to tie in all sections of the research reported, our exploration is highly metalinguistic, examining language-as-language. Bruce, the one child I identify, is 12 years old and his language system, like mine, is still developing and becoming a greater source of wonder and enjoyment to us both.

Some Implications from Teaching

We have examined evidence that the child's language system is still developing after age 5. By including metalinguistic awareness as part of the language system, we may argue that many adults are still in the language acquisition process, re-organizing their knowledge about language into internalized rule-systems. Among the adults quite likely to be still re-organizing are teachers, I would argue.

The following descriptions of teaching practices illustrate the point of child-adult language acquisition in the teaching-learning situation. The descriptions are personal explorations of ways teachers have helped facilitate child language acquisition and, in the process, have discovered new things about their own language.

I will be discussing activities done under the instructional rubric, The Language Experience Approach. The method used, precisely, or the degree of formality with which the method is used is, for the most part, optional; the degree of language exploration which the teacher does directly with the child should be determined by the needs of the child. The activities described do reflect a philosophy

toward language and thus are not capricious; they are purposeful. Nevertheless, I maintain that they could be done under other rubrics and in other ways.

The instructional rubric I have chosen, The Language Experience Approach, usually includes the final words "to Reading," making the full title "The Language Experience Approach to Reading." I have expanded my conception of the tasks of the teacher and learner, however, during my explorations of child language acquisition. I do not know how written language and oral language affect each other, but I am convinced that they do affect each other. It now seems to me than when we teach reading, we are capitalizing upon an internalized, rule-governed language system which the child acquires gradually; when we teach reading and the child indeed becomes able to read, we are furnishing new language experiences and concepts for him to incorporate into his rule-governed system. The internalized system that the child already has affects new learnings; we are not pouring information into an empty, shapeless container. We have no choice about individualizing instruction; the child, with an individualized system, forces individualization. The Alabama boy

marks a picture of a bell with an A and a macron or tells me that bell "is a long A word." I listen to him, and, sure enough, bell "is a long A word" for him. I might get him to give me the "right" answer, but I cannot force him to hear what he does not hear.

The overall guideline to the Language Experience Approach is child development: the teacher will engage with the child in language experiences and will observe developmental signs of language acquisition. It might be said that the teacher watches for metalinguistic awarenesses and helps facilitate their development. Many of the practices described here are quite like those discussed by Russell Stauffer (1970), but many are different, including the fuller use of the Word Sort and Word Hunt techniques.

The way the teacher can observe developmental signs with prereaders is to have them share some active experience, such as playing with a baby chicken. The teacher and children play with the chicken; I call this the doing or the happening, thanks to Starling Reid (1974). Then the chick, the stimulus or the referent or the context, is removed and the teacher and children discuss their experience with the teacher noticing the

level of oral language development of each child. I call this the talking. I feel that it is important to separate the talking from the composing, which is the next step. After the talking, the teacher invites the children to compose a story which she will write down. The teacher may then write the children's account of the experience on a large chart or board, with the children watching. During the composing the teacher notices the degree to which each child indicates an awareness of the difference between oral language and written language, whether the child is composing or talking. She is aware that it is too simple to proclaim that writing is "talk written down," as the old saying goes. One child talked fluently about making paperdoll clothes in the normal pattern of oral language; when asked to compose, she indicated an awareness of sentences and of a more formal code. She was not aware of many aspects of written language; she didn't know what was encoded in writing. She composed: "First you get the--ummm--materials. Leave out the ummm."

In writing down the composition after a happening like the chicken experience the teacher attempts to get a contribution from every child, labelling the child's

words with his or her name ("said Mary"; "said John"). She makes note of the children who do not seem to be ready to contribute to the "story" ("story" because it is a hybrid, perhaps not fully oral language or written language). She differentiates instruction for the children on the basis of the observations she makes.

From here on I will describe the activities as if the children are "progressing on schedule," whatever that means. The teacher and children "read" the story together after the composing; I suppose I must call this step the reading, to continue the pattern. They choral-read the story, with the teacher observing which children show signs of remembering their own sentence or part of it, remembering their names, anticipating a word from the sense of the sentence and event context.

A schedule of re-readings is followed, with the teacher watching for children who can remember a sentence, or a word, or part of a story. She wants to know which children pay attention to the segmentation of the printed representation of language. For example, she watches for the children who can point to the word chick in the sentence, "The chick was yellow,"

by tracking to the word. She is attentive to any sign that the children have some awareness that the four "words" are set off by the spaces between and surrounding them.

(Some teachers feel that pointing to each word and pronouncing each word separately may facilitate the child's awareness of the connection between oral segmentation and written segmentation: "The-chick-was-yellow." Other teachers feel that the child should hear the sentence read with normal "expression," or stress, pitch, and juncture, to borrow terms from the linguists. Perhaps some children need a bit of both at the beginning reading stages; certainly the child who shows awareness that the space is a meaningful clue to where the words are--and that there are such "things" as words--does not need the staccato version.)

The children tend to learn a few words from these early pseudo-stories. One of the words most frequently learned could be predicted by anybody; the child most frequently learns his own name. Also the teacher communicates to children her concept for remembering words. One important kind of memory for words is being able to recognize the word when it is taken out of the story context and written on

a card or the chalkboard. If the child "forgets" the word when it is removed from the story context, the teacher watches for the child's awareness that he can go back to the story, locate the sentence from which the word came, and "track it down" again. This tracking down is also an important part of memory for words, because the child indicates that he can use tools for remembering. The child who tracks down the word in a sentence may or may not have a developing concept for "sentence." He may conceive of the strategy as "looking for my part of the story," and the teacher makes note of any indication of the developing concept for "sentence."

The teacher will ask the child to find words from the story which the child thinks he "knows." If the child can remember these words over a period of days, these words are then written on cards and placed in a personal collection, often called a Word Bank. This collection is treated as being quite special; these words are well-known. Words that are remembered are kept in the Word Bank; words that are "forgotten" are re-located in the story to see if the story will clue the remembering; words that are temporarily lost from the Word Bank

re-enter when the child can sustain them in memory quite well. The teacher does not "drill" the child with the words but allows the words to re-enter the Word Bank "if they will." The teacher wishes to help children understand that memory is not once-and-for-always in reading but is quite like memory in the other contexts of his life; he learns words, as he does people, better and better as he has more experience with them and forgetting is a normal part of living and learning. His memories will return and he can learn ways to help them return.

The emphasis in the Word Bank idea is to collect a group of words which the child consistently recognizes almost instantly, however. We believe that the child needs well-processed units, or sight vocabulary, if he is to deal with these units in the analytical way that I have referred to in this paper as using metalinguistic awareness. In language acquisition, Ruth Clark (1974) listed instances in which the child incorporated an unanalyzed unit into oral language, but could not break it down or use it in new situations. It may be speculated that such an unanalyzed unit could not contribute to the child's rule-system; analysis

cannot take place until the word or other unit is well-processed. I would like to suggest that, similarly, a word learned in reading should be an item stabilized in reading usage before a child is asked to analyze it, particularly in the beginning reading stages.

In teaching a child to read, a teacher often assumes that she must teach certain skills, such as the sounds for beginning and ending consonants, vowel patterns, inflectional endings, and the like. The extreme opposing view to this assumption would be: "That's ridiculous. The child already knows sounds; he uses them, doesn't he?" A commonsense and also informed viewpoint would mediate between these two: the child does use the sounds of his language in an organized, rule-governed system in order to speak, but he does not yet know the kind of match or matches between the oral sounds of language and the written symbols on the paper.

The teacher may help the child explore the relationship between his stories, his sentences, his words, and the squiggles on paper by using the stable collection of known, or remembered, words that I have called the Word Bank. Only when such

a collection of well-processed words (meaning by word, the marks on paper that we typically set off by the spaces in writing a statement) is gathered would the teacher ask the child to look for words that "begin like Sally," etc. Only when she has some reasonable evidence that the child is aware, to some extent, of a word as a word, a sentence as a sentence, a letter as a letter--only when the child has displayed some metalinguistic awarenesses--would she ask the child to analyze these linguistic elements.

With the words from the Word Bank, the child can be guided in categorization activities through which he can have opportunities to incorporate into his knowledge of how language works new hypotheses about how the letters and spaces work to stand for the segments and rhythms of word sounds in oral language. We have called these word exploration activities Word Sorts.

The teacher can guide the Word Sorts initially, asking the child to sort his words according to two or three beginning sounds, for example, and to put all the other words into the "miscellaneous," or "leftover pile," to use Anderson's term. After the child has sorted his words, the teacher will ask

him to affirm his decision, in effect, to check through his words one by one, to see if they truly fit the category he has established. This strength of decision step allows the child to assert his degree of certainty. This step also allows the child to know that it is his understanding of the category that is important. It allows him to assert: "I don't see this as that sort of a thing." It may also allow him to become increasingly aware that boundaries are vague (Anderson, 1975; Labov, Wittgenstein,

After the child has done a number of these Structured Word Sorts, the child may suggest other Sorts to do, or the teacher may ask the child to sort the words without specifying the category. Then she may ask the child, "Why did you sort the words this way?" The Open-Ended Word Sorts allow the child to demonstrate new concepts about how words work. (Often we overlook learning that takes place when the child is over in the corner alone with a book, or listening to stories read aloud, or reading advertisements on cereal boxes. Open-Ended Word Sorts can allow the child to display and test out his new categorizations,

including those he has worked out in private.)

I shall omit further description of Word Sorts for beginning consonants, vowel spelling patterns, inflectional endings, compound words, etc.; instead, I would like to indicate how this same strategy may operate for children who are becoming more proficient in reading. I should mention, however, that the procedures for what I am calling Word Sorts come from the notion of categorization which may be one of the basic operations of thinking (Bruner et al., 1956; Rosch, 1975a and 1975b; Scribner, 1974). This categorization may go on with or without guided activities but if unguided the strategy may be less efficient for school-related tasks (Scribner, 1974).

A common rule-of-thumb has circulated for years about Word Banks. You use Word Banks with the child only so long as they are indeed helpful to get the child reading books, whether primers or easy storybooks. To be able to read with this degree of ease the child needs to recognize some of the most common words used in running speech/text, but he also needs to have some way of working out new words. From the dictated stories (and from being read to), the child learns that the story can guide him to what the word may be. From Word Sorts, or other

word exploration activities, the child may learn other ways of working out new words; these ways of working out new words are typically called "phonic skills," or "word attack skills," or some such title. I would rather consider these ways of working out new words to be strategies, word-solving strategies in the context of child language acquisition; the child generates some hypotheses about how words work and incorporates the hypotheses that survive testing into his internalized rule-system.

Recently a colleague asserted the belief that the rule-of-thumb of the Word Bank's outgrowing its usefulness may be related to the idea of the rule-system. He speculated that the limit usually given for the Word Bank size (250-300 words) may be given because from that number of words the child has evidence from which to test hypotheses about how to solve most unknown words which he will find in primers. (He has also read stories and sentences with a meaningful context and has explored metalinguistic elements enough that more direct teaching may now be effective. The teacher may feel confident that when she says, "Look on page 13;

find the first word in the second sentence; tell me what sound the letters TH- represent," the child will be able to attend to the underlined words with some understanding of the meaning of the directions.)

We have played with the idea that the Word Bank outgrows its usefulness i the l chil language acquisition research. One school faculty elected to use the term Extended Word Bank to distinguish between the beginning Word Bank and a collection of words used for more sophisticated word exploration. These teachers stress the idea of well-processed, or well-remembered sight vocabulary words in the beginning Word Bank. In the Extended Word Bank, they encourage the children to use newer words along with the well-remembered words.

The children are encouraged not just to sort old words, but to actively seek out new words. We call these activities Word Hunts. In Word Hunts we assume that the child has a fairly good grasp on his categories. He may hunt for words with certain prefixes or suffixes; he may look for nouns or verbs; he may look for words that fit a semantic

category. In any case, we still ask the child to "define" the category: What are you looking for? We ask him to state the criterion he is using: Why did you pick this word for this category? We ask him for strength of decision: Does it fit? I have become increasingly impressed with this approach when I have heard a student say: Well, you know, this word seems like it could be a noun--then again, it seems like it could be a verb. Or say: This word just almost seems like it would fit, but it really doesn't. These children seem to be saying, along with Anderson, that they understand that boundaries are vague when you take a close look.

Back to the Research

Anderson might have used a better phrase than "boundaries are vague." She might have said boundaries are alive, or used some metaphor expressing the variability of the categories. Her cup and glass research is intriguing, whatever her metaphor. We might claim that those people who "know" the most in any field are those people who sense most strongly the "vagueness" or aliveness of boundaries, or of

categories, or of definitions (Wittgenstein, 1958). Spectrographic analysis of speech has illustrated that sounds which I firmly classify as the "same" are not produced in the same manner and, when segmented, do not sound the same (Glucksberg & Danks, 1975). Eve and Herb Clark's work in semantic fields has awakened me to the awareness that use of words in an acceptable context does not always imply that the user understands by that word what I think he does. Eleanor Rosch's work with typicality ratings has alerted me to the variability with which individuals view words in categories; that the overall ratings look similar, but that individuals classify differently. Variability and invariance are both aspects of language inquiry (Labov, 1972).

Word Sorts have increased my sensitivity to the aliveness of boundaries. I have been comforted by reading that philosophers of language and psycholinguists also have trouble with boundaries. Consider the name Word Sort. What is a word? I did a Word Sort recently for a course in cognitive psychology, using a list taken randomly from a dictionary. I chose fifty words, fifty nouns.

From those fifty words, five were what one might call separated compound words (words?)--

joss stick

pop art

inky cap

fan mail

tourist class

one was hyphenated--

write-off

two were joined--

billingsgate

cobweb

[Now that I chose that visual display, what do I do to end the sentence (is it a sentence when I spread it out?)__(And what punctuation mark goes where I put the __?)]

Yet I am fairly comfortable with those compound words as words, and I am certain that the reader can process the display and ideas I just wrote. Wittgenstein (1958) pointed to the aliveness of boundaries and the miracle that with these alive boundaries we still communicate with and comprehend each other.

I am doing a fairly persistent metalinguistic Word Sort in my current study of language and

of reading education. I am becoming increasingly aware of language as an intelligible system (I can make sense out of it, generate rules that work in it); I am also increasingly aware of language as a system internal to me, constantly changing its meanings and uses for me.

Weinreich and his associates indicated that language change can be characterized as following certain patterns but that our predictions about sound change, etc., do not rest upon causation which we have been able to infer; the predictions rest on capturing change in the act of happening. Percentages of usage in certain groups of individuals, fitted together with how change has occurred in the past, allow us to make predictions about language change, but these are a peculiar sort of prediction. Observing language change in the individual, in the young child acquiring language, may be what the teacher is observing in the Word Sort, and the predictions she makes are also a peculiar sort of prediction, strongly related to the teacher's own metalinguistic analyses.

I used to try to structure a learning task so that the child would be able to move flawlessly

from simple to complex, from concrete to abstract. Now I doubt the possibility of that approach. Roger Brown (1973) observed that very young children do not acquire labels from concrete to abstract, judging by adult standards. Some children will learn a specific name first (collie); others will learn what adults would call a superordinate (dog). Labels can come first, with instances learned later; or the reverse can happen with instances learned first and a label applied later. He even argued that some categories are built from a midpoint of specificity outward toward a more overarching label and toward more defined instances. However this labelling goes and relates to the child's concepts, we do not understand the intricacies yet (cf. E. Clark, 1973a and 1973b; K. Nelson, 1974).

The lesson I draw is that we must observe the child's concepts with him. The child with whom I am currently working has had some formal teaching for some metalinguistic concepts. Thus he has been able to proceed from my giving him a school-type term in directions: Bruce, find all the short vowel words in your Word Bank and sort them

into the five short vowel categories we have been working on. Other concepts Bruce has less preparation for; I must observe him more closely to guess what his concept is. For example, I asked him to take some word cards and sort them into nouns, verbs, pronouns, and [illegible]tovers." I asked him what his definitions were for these categories. He recited the traditional "nounisanameofapersonplaceorthing," and told me he wasn't too sure what a verb was, but it was kindalike some kind of action. In that particular Word Sort, I decided to ask him to perform operations on the words that you can usually perform with nouns (make them plural) or with verbs (change them into the third person singular form, past tense form, progressive, and infinitive forms: the -s form, the -ed form, the -ing form and the to_____ form). From his operations on the words, he made decisions to remove some words from his classifications on a more refined criterion (by "adult" standards) than he began with. He also began to use the metalinguistic labels easily after performing the operations; he began to speak of the past tense form after he realized that told

and went actually fit his verb category, including the -ed form, but that -ed wasn't descriptive enough. The labels came to the concept.

Because of these discoveries with Bruce and of my study in child language acquisition, I no longer try to structure the learning task from simple to complex, concrete to abstract, because I realize that I am not sure what that means, or what sense it makes in working with the young language acquirer. Next, Bruce and I are going to see what sort of sense we can make from prefixes and suffixes by using Carol Chomsky's (1970) suggestions about the congruence between "lexical spelling" and English orthography: history, historian, historical, etc. Ordinarily, I would have had Bruce hunt for words with prefixes and suffixes and tried to help him infer the meanings of these affixes. Now I am going to have him look for and think of "related words," like cycle, bicycle, motorcycle, tricycle, unicycle, cyclical, then pull the concept of prefix/suffix from that. Bruce may discover prefixes and suffixes that are "alive" in the language and others that are "dead," using the criterion of whether we

could put that beginning or ending on a "new" root and make sense out of the changed word.

Carol Chomsky (1972) suggested that certain usages come from the written language, the formal language code used in books. Gleason (1973) identified styles or codes in oral speech; styles exist in written language also. Ruth Clark (1974) described unanalyzed units and how they can become analyzed in oral language. I am discovering unanalyzed units in written language that I am having to analyze at a usage level, and others, on a metalinguistic level.

The possibility has been raised that not all language structures are learned by all speakers, or even readers; few people would question the statement that our semantic understandings are continually changing. It is my goal to analyze my own understandings enough to be of aid to this child who is learning to read, since it is possible--tame word--that written language can contribute to his overall language system.

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